IN THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claims 1-2, 4-9, 11-13, 15 and 17 have been amended and claim 19 has been added as follows:

Listing of Claims:

Claim 1 (currently amended): A crystalline polymer exhibiting reversible crystal transition phenomenon in the solid phase state at a crystal transition temperature (Ttr) of ~~0°C to 67°C (67°C > Ttr > 0°C)~~ 20°C to 60°C (60°C ≥ Ttr ≥ 20°C) and satisfying the relationship defined by the following formula (1):

$$150 > \Delta Htr > 1.6Ttr - 3.5 \qquad (1)$$

wherein ΔHtr represents [[an]] the endotherm (J/g) accompanying crystal transition and Ttr represents the crystal transition temperature (°C).

Claim 2 (currently amended): [[A]] The crystalline polymer ~~exhibiting reversible crystal transition phenomenon in the solid phase state at a crystal transition temperature (Ttr) of 0°C to 67°C (67°C > Ttr > 0°C)~~ according to claim 1, having a weight average molecular weight of 600,000 or less[[,]] and satisfying the relationship defined by the following formula (2):

$$150 > \Delta Htr > 1.6Ttr - 15 \qquad (2)$$

Claim 3 (original): The crystalline polymer according to claim 1 or claim 2, which is a copolymer of butadiene and an olefin.

Claim 4 (currently amended): The crystalline polymer according to ~~any one of claims 1 to 3~~ claim 1, wherein the polymer is a modified polybutadiene.

Claim 5 (currently amended): The crystalline polymer according to ~~any one of claims 1 to 4~~ claim 1, wherein the raw polymer of the modified polymer contains 97 [[mo%]] mol% or more trans-1,4-structure.

Claim 6 (currently amended): The crystalline polymer according to ~~any one of claims 1 to 3~~ claim 1, wherein the polymer has a melting point (Tm) of 100°C or more.

Claim 7 (currently amended): A thermoresponsive board comprising a flexible substrate and a layer of a material exhibiting reversible crystal transition accompanied by volume change provided on one ~~of the surfaces of the~~ side of a substrate.

Claim 8 (currently amended): The thermoresponsive board according to claim 7, wherein the material exhibiting reversible crystal transition accompanied by a volume change is [[is]] trans-1,4-polybutadiene with a trans-1,4-bond content of 90% or more.

Claim 9 (currently amended): The thermoresponsive board according to claim 7, wherein the material exhibiting reversible crystal transition accompanied by a volume change is [[the]] a crystalline polymer ~~any one of claims 1 to 6~~ exhibiting reversible crystal transition phenomenon in the solid phase state at a crystal transition temperature (Ttr) of 20°C to 60°C (60°C ≥ Ttr ≥ 20°C) and satisfying the relationship defined by the following formula (1):

$$150 > \Delta Htr > 1.6Ttr - 3.5 \qquad (1)$$

wherein ΔHtr represents the endotherm (J/g) accompanying crystal transition and Ttr represents the crystal transition temperature (°C).

Claim10 (original): The thermoresponsive board according to claim 8, wherein the material exhibiting reversible crystal transition accompanied by a volume change is prepared by forming a film of trans-1,4-polybutadiene by applying a homogeneous solution of the trans-1,4-polybutadiene to one side of a substrate.

Claim 11 (currently amended): The thermoresponsive board according to claim 9, wherein the material exhibiting reversible crystal transition accompanied by a volume change is prepared by forming a film of the crystalline polymer ~~according to any one of claims 1 to 6~~ exhibiting reversible crystal transition phenomenon in the solid phase state at a crystal transition temperature (Ttr) of 20°C to 60°C (60°C ≥ Ttr ≥ 20°C) and satisfying the relationship defined by the following formula (1):

$$150 > \Delta Htr > 1.6Ttr - 3.5 \qquad (1)$$

wherein ΔHtr represents the endotherm (J/g) accompanying crystal transition and Ttr represents the crystal transition temperature (°C) by applying a homogeneous solution of the crystalline polymer to one side of a substrate.

Claim 12 (currently amended): The thermoresponsive board according to ~~any one of claims 7, 8, and 10~~ claim 7, wherein the surface of the substrate has a porous structure.

Claim 13 (currently amended): An overheat-protection element comprising [[the]] a thermoresponsive board ~~according to any one of claims 7 to 12~~ containing a flexible substrate and a layer of a material exhibiting reversible crystal transition accompanied by volume change provided on one side of a substrate.

Claim 14 (original): A thermoresponsive switch comprising a pair of electrodes, and an insulating component made of the crystalline polymer exhibiting crystal transition in the solid phase state and a component made of a conductive substance provided between the pair of electrodes, the electric connection and disconnection between the pair of electrodes being caused by change of volume expansion rate of the crystalline polymer when the polymer exhibits transition in the solid phase state near the crystal transition temperature range.

Claim 15 (currently amended): The thermoresponsive switch according to claim 14, wherein the crystalline polymer is ~~the polymer according to any one of claims 1 to 6~~ a crystalline

polymer exhibiting reversible crystal transition phenomenon in the solid phase state at a crystal transition temperature (Ttr) of 20°C to 60°C (60°C ≥ Ttr ≥ 20°C) and satisfying the relationship defined by the following formula (1):

$$150 > \Delta Htr > 1.6Ttr - 3.5 \qquad (1)$$

wherein ΔHtr represents the endotherm (J/g) accompanying crystal transition and Ttr represents the crystal transition temperature (°C).

Claim 16 (original): The thermoresponsive switch according to claim 14, wherein the conductive substance is a metal.

Claim 17 (currently amended): A thermal storage material and a thermal storage medium comprising [[the]] a crystalline polymer ~~according to any one of claims 1 to 6~~ exhibiting reversible crystal transition phenomenon in the solid phase state at a crystal transition temperature (Ttr) of 20°C to 60°C (60°C ≥ Ttr ≥ 20°C) and satisfying the relationship defined by the following formula (1):

$$150 > \Delta Htr > 1.6Ttr - 3.5 \qquad (1)$$

wherein ΔHtr represents the endotherm (J/g) accompanying crystal transition and Ttr represents the crystal transition temperature (°C).

Claim 18 (original): A method for heating the thermal storage material and thermal storage medium according to claim 17, characterized by using a microwave.

Claim 19 (new): The crystalline polymer according to claim 4, wherein the modified polybutadiene is an epoxy-modified polybutadiene.